

ICT-ASIA regional program

ONCO-MEDIA

***ONtology and COntext related
MEdical image Distributed Intelligent Access***

ASSESSMENT

URL : <http://ipal.i2r.a-star.edu.sg/Projects/ONCO-MEDIA/onco-media.htm>

DANIEL RACOCEANU

Prof. University Pierre et Marie Curie, Paris, France
 Research Fellow, French National Center for Scientific Research
 Image Perception, Access & Language - IPAL UMI CNRS 2955, Singapore

Oct. 2006 – Juillet. 2011



TABLE DES MATIERES

1. OBJECTIVES OF THE ONCO-MEDIA PROJECT	4
2. SUMMARY OF THE PROJECT.....	5
3. ONCO-MEDIA CHALLENGES.....	5
4. POTENTIAL APPLICATIONS OF THE CBIR	6
5. ONCO-MEDIA CONSORTIUM	6
6. SCIENTIFIC CONTRIBUTION OF THE ONCO-MEDIA PROJECT.....	9
7. REGIONAL COLLABORATION & COMMON ACTIONS	14
1) FIRST SINGAPOREAN-FRENCH BIOMEDICAL IMAGING WORKSHOP – SFBI'06, 12-13 OCTOBER 2006, BIOPOLIS, SINGAPORE	14
2) MEDICAL IMAGE RETRIEVAL SPECIAL SESSION, ASIA INFORMATION RETRIEVAL SYMPOSIUM – AIRS 2006, SINGAPORE, 16-18 Oct 2006	15
3) ORGANIZATION OF A SCIENTIFIC INVITATION-BASED FRENCH-SINGAPOREAN MEETING IN BIOMEDICAL IMAGING – SFBI 07, 27 AUGUST 2006, LYON, FRANCE	16
4) ONCO-MEDIA SPECIAL SESSION IN MIST 2007, 19 NOVEMBER 2007, WAN-FANG HOSPITAL, TAIPEI, TAIWAN	17
5) WORKSHOP ONCO-MEDIA – AIST, TSUKUBA, JAPAN, 18-19 JULY 2007	17
6) ONCO-MEDIA SPECIAL SESSION IN THE ANNUAL MEETING OF JAMIT, TSUKUBA, JAPAN, 20 TH OF JULY 2007	18
7) ICT4HEALTH, FIRST INTERNATIONAL SYMPOSIUM ON ICT FOR HEALTH, FEBRUARY 29TH-1ST MARCH 2008, ATENEO DE MANILA UNIVERSITY, MANILA, PHILIPPINES	19
8) SINFRA'09 - SINGAPOREAN-FRENCH IPAL SYMPOSIUM, 18–20 FEVRIER 2009, FUSIONOPOLIS, SINGAPOUR – TUTORIAUX ET SESSIONS SCIENTIFIQUES (100 PERS.) (KEYNOTE - JOSEPH SIFAKIS, 2007 ACM TURING AWARD WINNER).	20
9) SFBI 2011 – SINGAPOREAN - FRENCH BIOIMAGING SEMINAR 2011, 24-25 FEVRIER. 2011, BIOPOLIS, SINGAPOUR, (KEYNOTE – MATHIAS FINK).	20
8. OTHER COMMON MEETINGS BETWEEN ONCO-MEDIA PARTNERS.....	21
9. COMMON SCIENTIFIC PUBLICATIONS AND PUBLICATION ISSUED FROM ONCO-MEDIA COMMON EVENTS	22
1) INTERNATIONAL JOURNALS	23
2) CONFERENCE INVITEE	24
3) EDITION PROCEEDINGS ET NUMEROS SPECIAUX DE JOURNAUX SCIENTIFIQUES	24
4) BOOK CHAPTER	25
5) COPYRIGHTS	25
6) COMMUNICATIONS TO INTERNATIONAL CONFERENCES AND SYMPOSIUMS WITH PROCEEDINGS	25
7) COMMUNICATIONS IN INTERNATIONAL WORKSHOPS	27
8) COMMON RESEARCH REPORTS.....	29
10. EXCHANGES AND COLLABORATIVE RESEARCHES	30
11. FINANCIAL ASSESSMENT (BILAN DES FINANCEMENTS)	32
12. PROJECTS/PROPOSALS ISSUED FROM ONCO-MEDIA COMMON RESEARCHES.....	33
13. IMPACT OF THE COLLABORATION / RAYONNEMENT	33

1. Objectives of the ONCO-MEDIA project

The objectives of the ONCO-MEDIA project, granted through the 5th ICT-ASIA regional program framework for 2 years (2006-2008)¹ by the French Ministry of European and Foreign Affairs (MAEE) and the French National Center for Scientific Research (CNRS) are related to three main priorities:

1. *To develop a novel grid-distributed, contextual and semantic based, intelligent information access framework for medical images and associated medical reports focusing on:*
 - a. *Robust visual indexing and retrieval (set of) algorithms for medical images;*
 - b. *Robust fusion indexing (set of) intelligent techniques for medical images and associated medical reports;*
 - c. *A grid-distributed medical image retrieval application that links the medical concepts of the images and text documents based on medical ontology using intelligent methods;*
 - d. *Methods for context-sensitive navigation and query;*
 - e. *Security and privacy imperatives concerning the communication, indexing, retrieval, navigation and query management.*
2. *To explore new medical image diagnosis assistance, teaching and research access applications using semantic, visual and context-sensitive medical information with the grid computing facilities;*
3. *To crystallize a network of research excellence in the field of distributed medical images access among Asia, French and French Switzerland partners, leveraging on their complementary scientific values and experience.*

L'objectif du projet ONCO-MEDIA (ONtology and COtext related MEDical image Distributed Intelligent Access) consiste à élaborer des méthodes et principes de base d'un système distribué de recherche d'information basé sur l'imagerie médicale, en globalisant des ressources informatiques et les données médicales des partenaires français/européens et asiatiques impliqués. Mise à part son rôle d'initiation d'un réseau asiatique d'excellence autour de la France dans ce domaine, le projet est destiné à apporter des bases solides et les futures spécifications d'une telle plate-forme, en mettant au point des techniques d'extraction d'informations sémantiques à partir des informations médicales traitées et de fusion des ces concepts « haut niveau », afin d'élaborer une méthodologie d'indexation et de recherche d'information contextuelle robuste. Les applications visées concernent l'aide au diagnostic, à la thérapie et au suivi médical, ainsi que des ouvertures vers des domaines d'applications nouveaux comme l'extraction de signification à partir des données médicales (medical data mining) et de médecine factuelle (evidence-based medecine).

Le projet ONCO-MEDIA a été labellisé pour une période de 2 ans¹ dans le cadre ICT-ASIA et co-financé par le Ministère des Affaires Européennes et Etrangères Français et le CNRS (coté français) et co-financé par les partenaires asiatiques.

¹ NB : Le financement de la deuxième tranche 2007/2008 étant intervenu avec 2 années de décalage (fin 2009 au lieu de fin 2007), les actions ont été reprises avec un

2. Summary of the project

Content-based visual information retrieval or Content-Based Image Retrieval (CBIR) has been one on the most vivid research areas in the field of computer vision over the last years. In the medical field, images, and especially digital images, are produced in ever-increasing quantities and used for diagnostics and therapy. The availability of large and steadily growing amounts of visual medical data and the development of the Internet underline the need to create thematic access methods that offer more than simple text-based queries or requests based on matching exact database fields.

Many CBIR programs and tools have been developed to formulate and execute queries based on the medical image visual content and to help browsing. Still, no general breakthrough has been achieved with respect to large varied databases with documents of differing sorts (modalities) and with varying characteristics (anatomy, pathology). Answers to many questions with respect to semantic descriptors, semantic gap, medical image and report fusion indexing or context-sensitive navigation and query are still unanswered.

On the other hand, computation and data grids have also encountered a large success among the scientific computing community in the past few years. The medical imaging community is increasingly aware of the potential benefit of these technologies in facing today medical image analysis and retrieval challenges.

In this context, the aim of ONCO-MEDIA project is to deploy a medical image semantic content-based application on a large scale grid testbed, by taking into account the context of the user and of the navigation / query and by matching semantic visual concepts extracted from the medical image with those (textual) extracted from the associated medical reports.

3. ONCO-MEDIA challenges

The challenges of this project are linked with the main keywords enhanced by the acronym: ONCO-MEDIA: ONtology and COntext related MEDical image Distributed Intelligent Access

1. ONTOLOGY:
 - a. Semantic Gap,
 - b. Structured Medical Knowledge / Ontology
2. CONTEXT:
 - a. Contextual Retrieval,
 - b. Contextual Navigation,
 - c. Contextual Query
3. MEDICAL:
 - a. Privacy issues
4. DISTRIBUTED PARALLEL COMPUTATION:
 - a. Increase the computation capabilities (2D, 3D images),
 - b. Distributed medical databases
5. INTELLIGENT SYSTEMS:
 - a. Data mining
 - i. Neural networks,
 - ii. Association rule mining,
 - iii. Intelligent inter-media fusion...
6. ACCESS:
 - a. Knowledge based similarity methods,
 - b. Medical image / cases retrieval

4. Potential applications of the CBIR

The application fields are grouped around three directions:

- **Medical assistance** by exploiting similar cases in huge databases
 - ✓ *Detection*
 - ✓ *Diagnosis assistance*
 - ✓ *Prognosis*
 - ✓ *Treatment*
 - ✓ *Quantification*
- **Education** using similar and visually similar cases
 - ✓ *Deeper understanding*
 - ✓ *Training*
 - ✓ *Medical multimedia atlases*
- **Medical research** by exploiting existing databases
 - ✓ *Medical Image mining extraction*
 - *New pathological trends,*
 - *Extract new global characteristics by type of population and geographic regions*

The use of the GRID for computation and data distribution

5. ONCO-MEDIA consortium

The partners of the ONCO-MEDIA project are:

France/Singapore:

- *IPAL UMI CNRS 2955 (NUS, I2R/A*STAR, UJF) Singapore—leader of the project*

France:

- *CREATIS Lyon - UMR CNRS 5515, Inserm U 630, INSA Lyon*
- *LIRIS Lyon - UMR CNRS 5205*
- *LIP6 Paris - UMR CNRS 7606*
- *FEMTO-ST/AS2M Besançon UMR CNRS 6174, Univ. Besançon,*
- *I3S Sophia Antipolis - UMR CNRS 6070*

French Switzerland:

- *Service d'informatique médicale, Hôpitaux Universitaires de Genève*

Taiwan:

- *National Taiwan University (NTU)*

Japan:

- *National Center of Geriatrics and Gerontology, NCGG, Aichi-Nagoya*
- *AIST, Tsukuba*

Philippines:

- *Ateneo de Manila University*

China:

- **LIAMA** (*Laboratoire Franco-Chinois de Recherche en Informatique, Automatique et Mathématiques Appliquées*), **CASIA** (*Institute of Automation, Chinese Academy of Sciences*), *Beijing*



Fig.1. ONCO-MEDIA Consortium (logos)

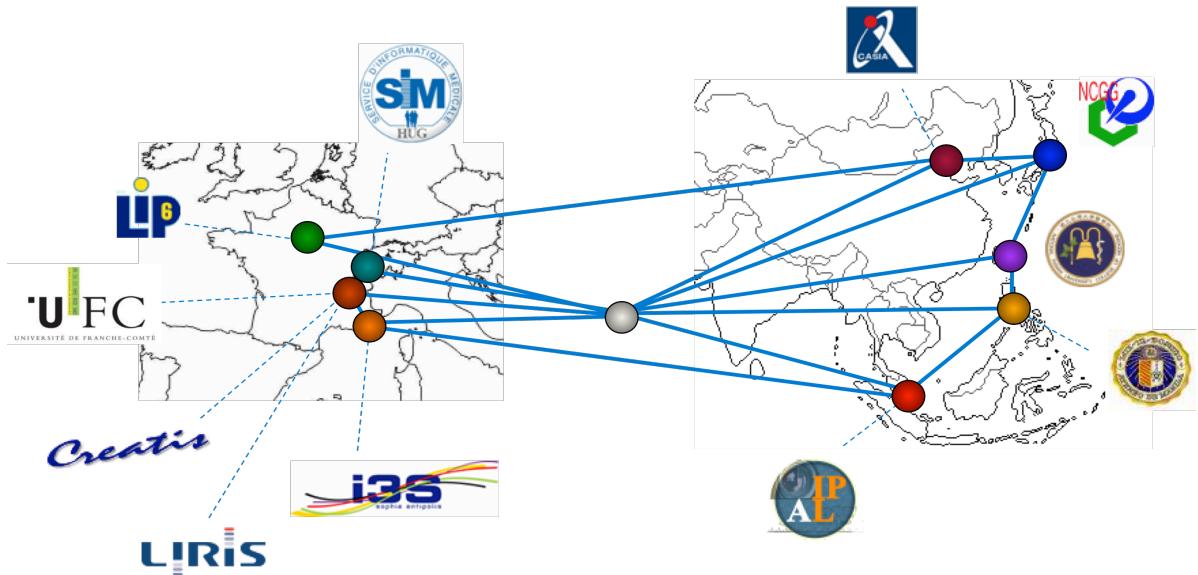


Fig.2. ONCO-MEDIA Consortium (geographical repartition)

Table I. Strength of the ONCO-MEDIA partners

IPAL	IPAL – CNRS, I2R A*STAR, NUS, UJF Singapore	CBMIR – Content-Based Medical Image Retrieval, Image Based Reasoning Systems
NCGG	National Center for Geriatrics and Gerontology, FBIL, Japan	CBMIR technologies and applications. 3D spatial coordinate for the indexing and the retrieval
I3S	CNRS / University of Nice - Sophia Antipolis	Biomedical grid, Context-sensitive navigation and query

NTU	<i>National Taiwan University</i>	Knowledge Management, Medical Information Systems
LIP6	<i>University of Paris 6, France</i>	Context-sensitive navigation and query
ATENEO	<i>Ateneo de Manila University, Philippines</i>	Grid infrastructure, web/distributed user-interfaces
CREATIS	<i>CNRS, Inserm, INSA Lyon, France</i>	Grid services adapted to the medical data management. Image segmentation methodologies for medical image indexing.
LIRIS	<i>CNRS, Univ. Lyon 2, France</i>	CBMIR system integration, grid for handling CBMIR large dataset and compute-intensive algorithms;
UNIGE	<i>Univ. Hospitals of Geneva, Switzerland</i>	Evaluation of image retrieval systems (ImageCLEFmed). Multimodal retrieval (medGIFT); application domain with clinicians
UFC	<i>University of Franche-Comté, Besançon, France</i>	Case-based reasoning in the CBMIR context
CASIA	<i>Institute of Automation, Chinese Academy of Sciences, Beijing, China</i>	Image processing, data analysis and data visualization; querying approaches and information retrieval

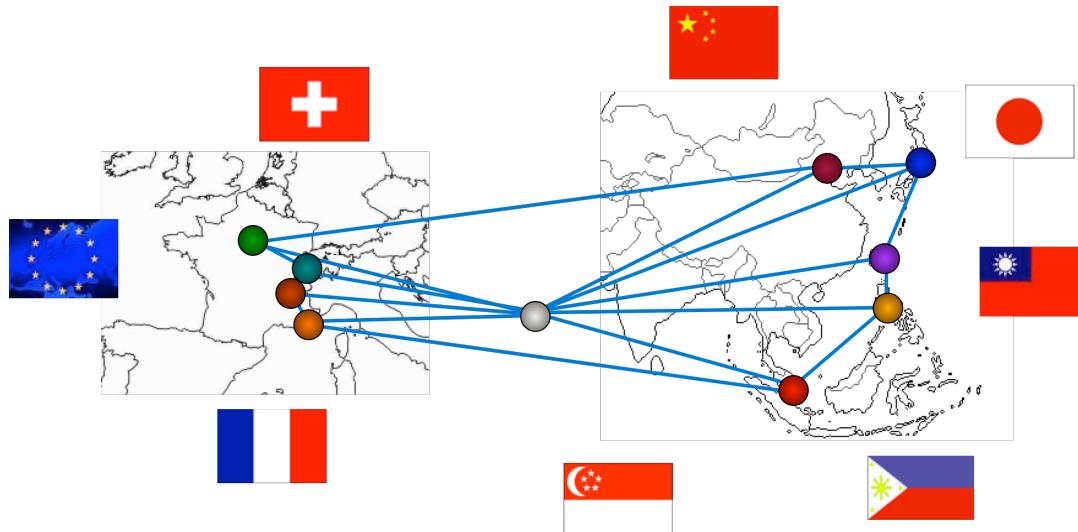


Fig.3. ONCO-MEDIA - a bridge between European and Asian countries

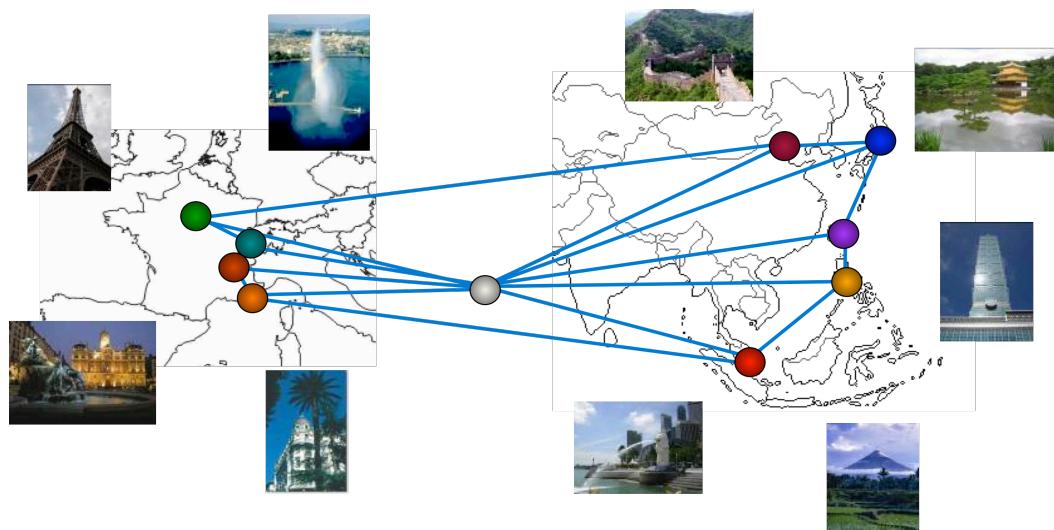


Fig.4. ONCO-MEDIA - a bridge between European and Asian cultures

6. Scientific contribution of the ONCO-MEDIA project

In the medical area, Content Based (Medical) Image Retrieval systems –consisting in medical images/cases access based on similarity - are situated on the top of the existing PACS systems (Picture Archiving and Communication Systems), using at their turn the well-known DICOM (Digital Imaging and Communications in Medicine) medical imaging standards.

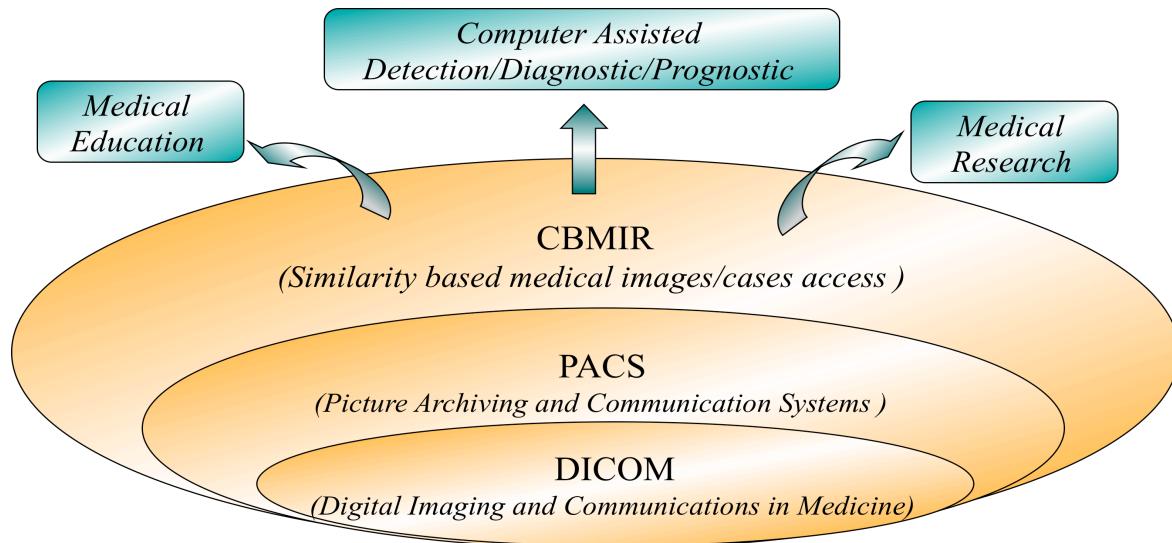


Fig.5. CBMIR versus PACS and DICOM

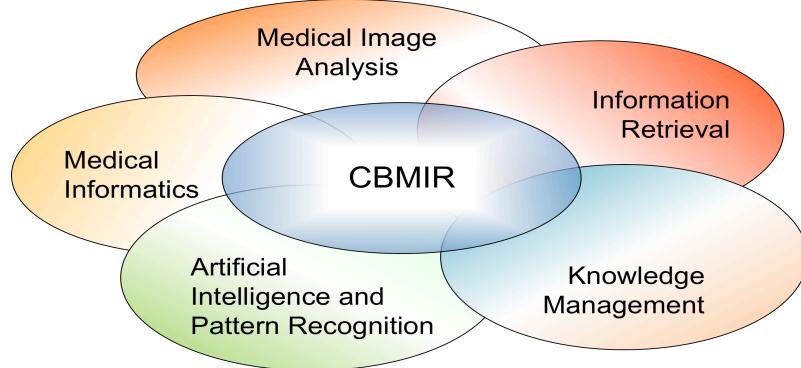


Fig.6. CBMIR and related fields

Highly multidisciplinary (see Figure 6), CB(M)IR domain brings additional challenges to the Information retrieval algorithms, due to the critical importance of the Specific Medical Domain Knowledge, essential in the diagnosis process effectiveness (precision) and efficiency/accuracy (recall). Indeed, compared to the natural images, in the medical area, the integration of the medical knowledge in the indexing and retrieval processes is still a difficult challenge. Not only an instantiation of the generic IR algorithms need to be done, with regards to the specific challenges induced by the medical area, but the algorithms themselves need to be revolutionarily improved in order to bridge the different gaps (content/semantic, features, performance, usability, perception, sensory) still remaining in the CBIR. In our opinion, this is an important research direction necessary to continuously lead in order to bridge the discrepancy between the proliferation of CBIR systems in the literature and the lack of their use in daily routine in medical communities.

Several approaches have been led in ONCO-MEDIA in this sense. One of them was the research led between LIRIS and IPAL during the Master thesis of QIU Zhenhua [Qiu, 2007] concerning the high dimension vector space Content-Based retrieval and its applications to the detection/diagnosis assistance of breast cancer from high resolution mammogram database. The objective of this work was to accelerate the Nearest

Neighbours search in high dimension database of Mammograms descriptors. The high dimensionality makes some traditional tree-based indexing methods inefficient. A vector approximation approach is used to reduce the data complexity and the cost of I/O operations. A comparative study between Dynamic Dimension Selection, Constant Piece Approximation and Principal Component Analysis applied for the dimension reduction shows that the PCA is the best for the real data set (DDSM² database, University of South Florida).

Another approach has been developed using a semantic indexing using the Unified Medical Language System (UMLS³) metathesaurus during the collaboration between IPAL and UFC leading to the Master thesis of Roxana Teodorescu [Teodorescu, 2006] and the beginning of her PhD cotutelle thesis. A CBIR prototype (see Figures 7 and 8) has been built for our participation to the Medical Image Retrieval Challenge Evaluation - ImageCLEFMed 2006⁴, an international CBIR benchmark consisting – for the medical image and text retrieval – into a retrieval challenge among 50 000 medical cases, provided by the US and European hospitals.

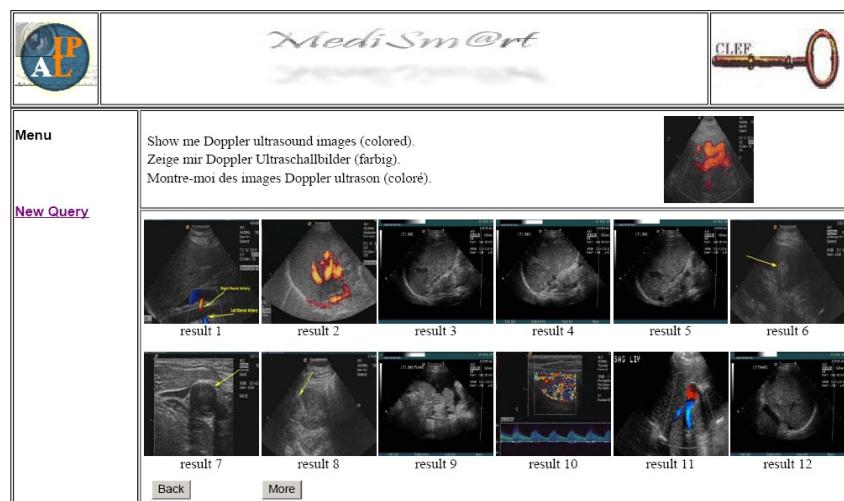


Fig.7. CBIR interface prototype – retrieval results for image and text query (Doppler) among 50 000 cases from CLEF 2006

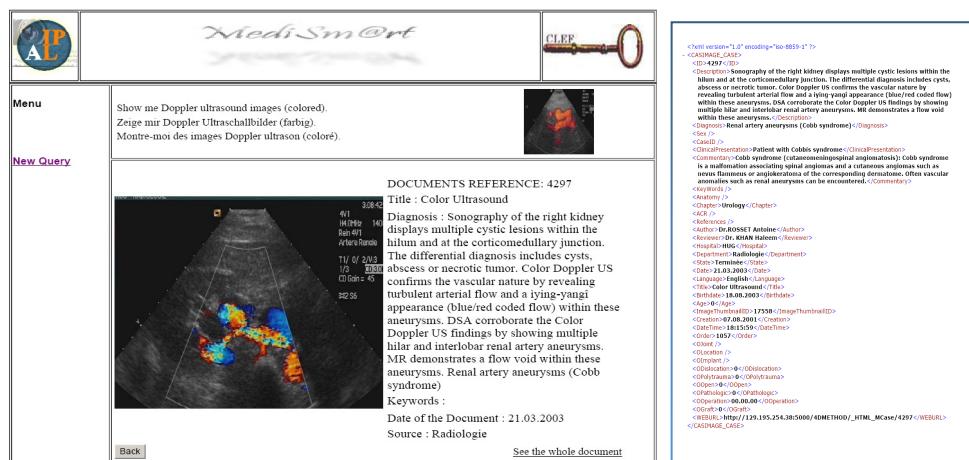


Fig.8. CBIR interface prototype – details about the results (image and associated document)

² DDSM : Digital Database for Screening Mammography - University of South Florida
Digital Mammography: <http://marathon.csee.usf.edu/Mammography/Database.html>

³ Unified Medical Language System (UMLS) metathesaurus: <http://marathon.cse.ucla.edu/>

<http://www.nlm.nih.gov/research/umls/>

⁴ ImageCLEFmed - <http://ir.ohsu.edu/image/>

A collaborative work between LIP6 and IPAL, related to the Master Thesis of Idir Tagzout [Tagzout, 2007] studied the context-awareness modeling of the diagnosis assistance process, with application to the brain MRI interpretation. The solution proposed to improve the state of the art approaches involves the hierarchical control for medical image understanding, combining bottom up algorithms (level set, seed region growing, ...) with the top down contextual information (issued from the clinical exam, pathology and functional atlas), and the use of the contextual graphs. This study enhances also the usefulness to focus future researches on temporal context integration.

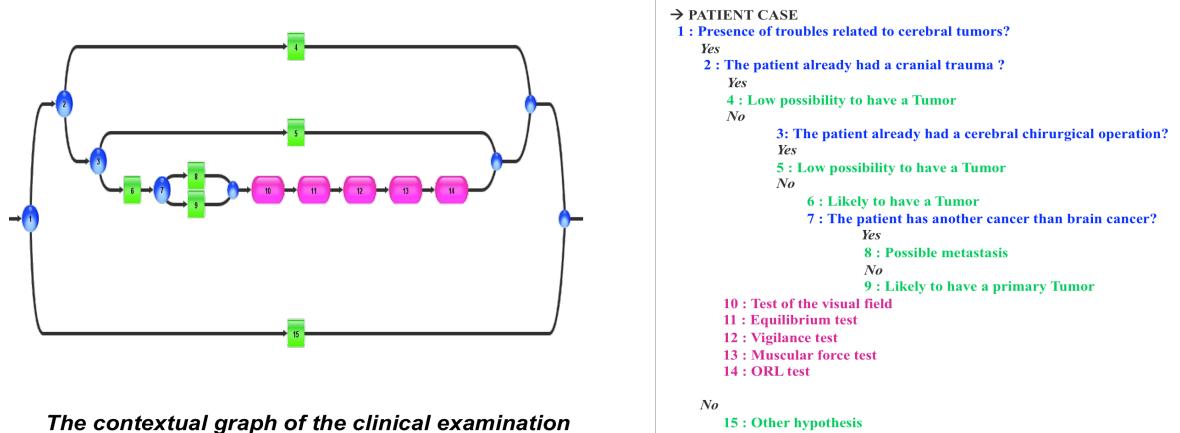


Fig. 9. Contextual graphs for « context-aware » medical procedures modeling

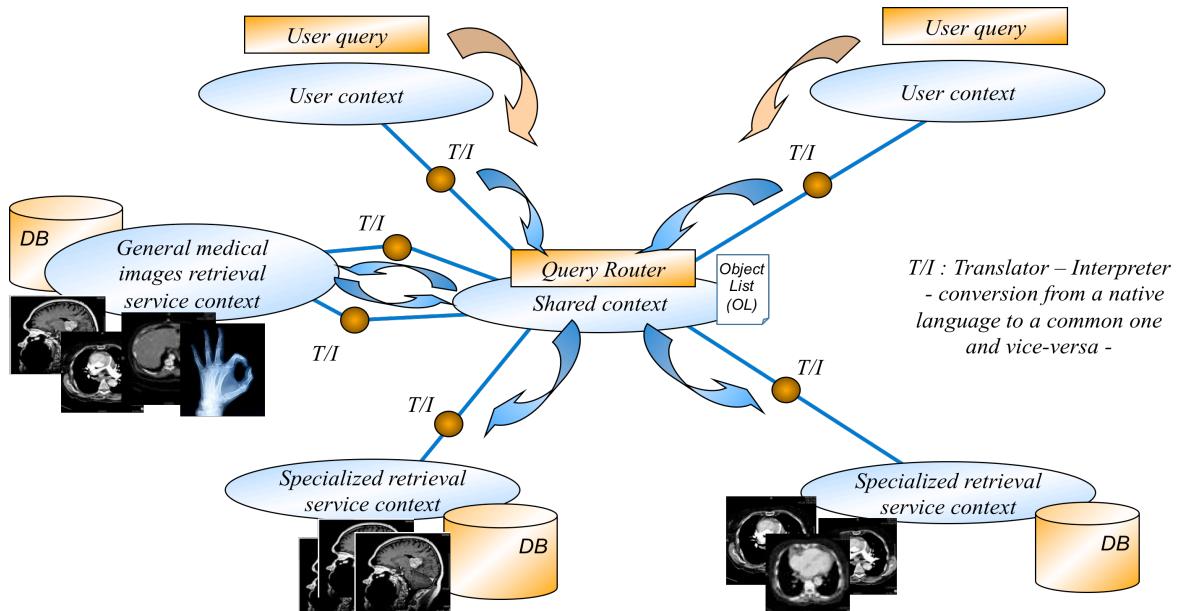


Fig. 10. Contextual modeling of the CBMIR in ONCO-MEDIA

Concerning the grid computing facilities, in our opinion, it's more than an Evolution: A Revolution in Computation. The grid is somehow for the computation a revolution similar to what Internet was for the communication

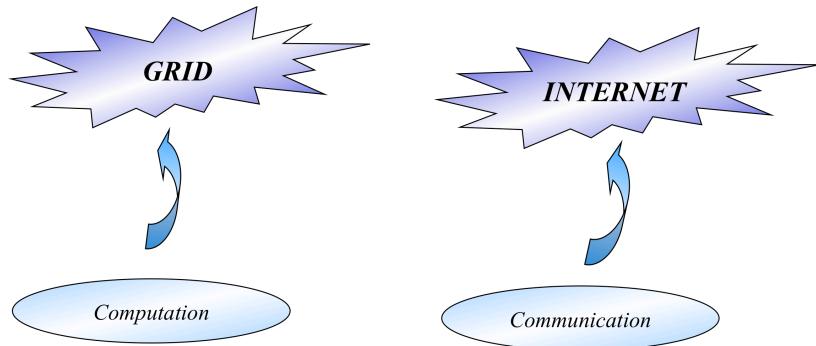


Fig.11. The GRID is for the computation a revolution similar to what INTERNET was for the communication

An important contribution of the ONCO-MEDIA partners has been to provide [ICT4Health, 2008b] an overview of the different projects and implementations concerned with using grid technologies for medical image indexing and retrieval. We provide both qualitative and quantitative answers evaluating the grid contribution in the field of image indexing and retrieval, what can grids bring to medical image indexing and retrieval and to what extent can grids improve the efficiency of classical solutions and what is the effort necessary to integrate them.

It has been summarized that grids have two main possible roles in CBIR systems: The first main role is the use as a storage infrastructure, with specific added value in:

- Collaborative databases
- A reliable backup infrastructure
- Database partitioning

The second main contribution of grids is mainly related to intensive computing, i.e. :

- Processing partitioning
- On-demand indexing

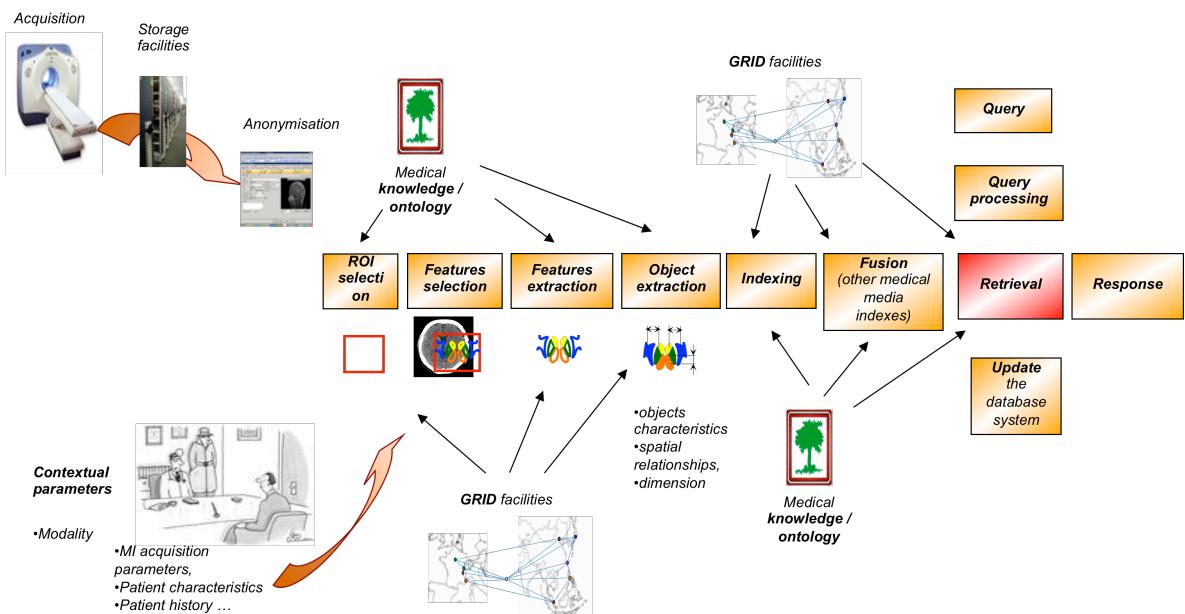


Fig.12. CBIR approach in ONCO-MEDIA project

Table II. Contribution of the ONCO-MEDIA partners to the project

<p>NCGG - Japan</p> <ul style="list-style-type: none"> <i>MedGrid experience</i> <i>Medical grid project – Japan + Ateneo + NTU</i> <i>Brain imaging</i> <p>ATENEO - Philippines</p> <ul style="list-style-type: none"> <i>MedGrid experience</i> <i>MedGrid cluster available for ONCO-MEDIA</i> <i>Human grid computing</i> <p>NTU - Taiwan</p> <ul style="list-style-type: none"> <i>Include EMR (Electronic Medical Records) data bases into the purpose of the project</i> <p>LIRIS - France</p> <ul style="list-style-type: none"> <i>IN2P3 CNRS institute – SRB stores the mammograms</i> <i>Links with EGEE</i> <p>LIP6 - France</p> <ul style="list-style-type: none"> <i>Context</i> <i>Context Based Image Retrieval versus CBIR</i> <p>CREATIS - France</p> <ul style="list-style-type: none"> <i>Brain disease, neurodegenerative diseases</i> <i>Segmentation, quantification</i> <i>Stroke, ischemia</i> <i>Contributions on brain stroke</i> 	<p>I3S - France</p> <ul style="list-style-type: none"> <i>EGEE biomedical projects responsible</i> <i>Context</i> <i>Workflows</i> <i>NeuroLOG project</i> <i>Indexing, retrieval</i> <p>IHPC - Singapore</p> <ul style="list-style-type: none"> <i>Computing capabilities</i> <i>Connection to EGEE</i> <p>I2R Singapore</p> <ul style="list-style-type: none"> <i>Ontology</i> <p>IPAL, NUS, I2R - Singapore</p> <ul style="list-style-type: none"> <i>Indexing & retrieval for text and image</i> <i>Stroke</i> <i>Breast cancer</i> <i>Dementia</i> <p>HUG</p> <ul style="list-style-type: none"> <i>Interstitial Lung Disease (ILD), Fractures</i> <p>CASIA</p> <ul style="list-style-type: none"> <i>Dementia</i> <p>NGO - Singapore</p> <ul style="list-style-type: none"> <i>EGEE entry point, storage capabilities</i>
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

One of the major preoccupations of the consortium was to bring the scientific challenge of the CBIR closer to the real applications, in order to initiate a translational research approach. Important collaboration have been started with Asian hospitals, as the Singapore General Hospital on the early detection of the brain stroke from Brain CT (the most used imaging modality for first screening in acute MCA stroke) and the National University Hospital on breast cancer grading from histopathology images [BMEI, 2008].

All those translational researches are continuing now and giving promising results.

Future perspectives of this project have been identified as related to building a content-based image indexing and retrieval system, able to enhance the use of the fMRI database of CGG/AIST Japan for research purposes (a deep study of the new meaningful relationship able to be identified between activities and volume of brain activation) related to the fractures (UNIGE) and to the use of the texture to enhance the medical image retrieval capabilities (I3S). These perspectives will be developed in the future phase of the project.

7. Regional collaboration & common actions

The assessment of the first part of the project was presented at the ICT ASIA Seminar on the 19th of November 2007 in Taipei, Taiwan. The project received a very good appreciation from the MAE and the CNRS, as from the all scientific representative at the seminar. We present by next the main milestones of the regional common actions initiated among the partners, with the support of the ONCO-MEDIA project and related to its scientific challenge.

Le bilan de la première partie de ce projet international (bilan présenté lors du séminaire annuel STIC ASIE à Taiwan le 19 novembre 2007), a été très bien perçu par l'ensemble de la communauté scientifique et des représentants du Ministère des Affaires Etrangères.

1) First Singaporean-French Biomedical Imaging Workshop – SFBI'06, 12-13 October 2006, Biopolis, Singapore

- Common international action leaded by partners of ONCO-MEDIA
 - Co-organisers Daniel Racoceanu – IPAL and Hugues Benoit Cattin - CREATIS
- Strong Implication of the SBIC – Singapore Bioimaging Consortium in the organization of this event
- Event hosted in Biopolis Singapore - high-tech biomedical park, Asia's leading center for biomedical sciences research and development.
- Event financially supported by main medical organizations/associations (INSERM, Stic SANTE, SBIC) and by the French Embassy in Singapore
- Topics related to the **modern challenges in medical images**:
 - Bioimaging and distributed medical informatics
 - Small animal quantitative imaging and molecular imaging
 - Image processing and clinical applications
- More than 90 participants from France and Singapore
- 40 Presentations
 - 5 Invited Talks,
 - 20 Oral Presentations
 - 15 Posters

Organisation du 1^{er} workshop franco-singapourien en bio imagerie médicale – SFBI 06, Biopolis Singapour.

Une des actions les plus porteuses menées dans le cadre du projet ONCO-MEDIA est certainement la organisation du 1^{er} workshop franco-singapourien en bio imagerie médicale, qui a eu lieu le 12-13 octobre 2006 à Biopolis, Singapour (SFBI06).

Se déroulant dans le haut lieu de la recherche biomédicale singapourienne, (Biopolis), ce workshop a bénéficié du soutien des laboratoires membres du Singapore Bioimaging Consortium (SBIC, Biopolis, Singapour) et d'un des laboratoires phare dans le domaine de l'imagerie médicale en France (CREATIS, Lyon). Biopolis est considéré comme la pépinière du biomédical singapourien, bénéficiant d'une

attention toute particulière du gouvernement singapourien. Ce haut lieu de la recherche biomédicale asiatique bénéficie des talents de chercheurs expérimentés, venus de tout le monde. L'organisation par l'IPAL de ce premier workshop, hébergé à Biopolis est en soit – tout un symbole, marquant le début d'une reconnaissance et offrant une ouverture très intéressante de collaboration à de nombreux laboratoires français partenaires.

Ce workshop a enregistré près d'une centaine de participants et a regroupé 40 présentations, avec 5 conférences invitées, 15 posters et 20 présentations orales, étant largement plébiscité par les participants pour la qualité des scientifiques présents, des travaux présentés, ainsi que les possibilités de collaboration ouvertes.

Il est à souligner le nombre très important de médecins qui ont participé à cet évènement, des deux cotés (français et singapourien), ce qui reflète le grand intérêt que ce workshop à tout de suite généré parmi les professionnels de la santé.

Une copie des transparents utilisés pendant l'ouverture de ce workshop, comprenant le programme des 4 sessions est présentée dans l'annexe 6.

2) Medical Image Retrieval Special Session, Asia Information Retrieval Symposium – AIRS 2006, Singapore, 16-18 Oct 2006

- *AIRS - One of the most well-known Asian Conference in Information Retrieval*
- *Modern challenges in medical image retrieval:*
 - ✓ *use of medical ontologies for CBMIR,*
 - ✓ *context aware query and navigation,*
 - ✓ *medical image distributed systems,*
 - ✓ *medical image anonymization,*
 - ✓ *medical images features extraction methods*
- *2 Invited Talks and 3 Oral Presentations*
- *Publications issued in Lecture Notes in Computer Science (LNCS), Springer Ed., a medium for the publication of new developments in computer science and information technology research and teaching*

Implication of ONCO-MEDIA partners

Organisation d'une session spéciale en recherche d'imagerie médicale – Conférence AIRS 2006 (Asia Information Retrieval Symposium), Singapour, 16-18 Oct. 2006

L'organisation d'une Session Spéciale « recherche d'imagerie médicale » dans le cadre de la conférence internationale AIRS 2006 (Asia Information Retrieval Symposium) qui a eu lieu entre le 16 et le 18 octobre 2006 à Singapour a été pour moi l'occasion de souligner les grands challenges de la recherche d'imagerie médicale, que représentent le fossé sémantique, la prise en compte du contexte, l'anonymisation des données et les systèmes de recherche distribués (annexe 7). Ces problèmes – pour certains spécifiques au milieu médical – revêtent d'une importance toute particulière dans le contexte d'utilisation du CBIR dans la médecine moderne, en prenant en compte

notamment l'ouverture vers la médecine factuelle (EBM – Evidence-Based Medicine) et le raisonnement à partir de cas médicaux (CBR)

3) Organization of a scientific invitation-based French-Singaporean meeting in biomedical imaging – SFBI 07, 27 August 2006, Lyon, France

Next to SFBI'06, an invitation-based scientific meeting SFBI'07 organized by IPAL in collaboration with the same partners CREATIS and the SBIC (Singapore Bioimaging Consortium) focuses on precise collaborations between French and Singaporean scientists, in order to define concrete framework to set up and contour the common research area/topic in order to start common project proposals and common co-supervised researches.

Important participants as:

- *CREATIS-LRMN, Lyon, France,*
- *IPAL CNRS/NUS/I2R/UJF, Singapore,*
- *Harbin Institute of Technology, China,*
- *I3S, University of Nice - Sophia Antipolis, France,*
- *Singapore Bioimaging Consortium, BioImaging Lab, Singapore,*
- *I2R / Media Division, Singapore,*
- *SBIC / Laboratory of Molecular Imaging, Singapore,*
- *CEA-LETI, Grenoble, France and*
- *Hospital University of Geneva, Switzerland*

have identified two common area of interest: one related to the medical informatics and the second one related to the molecular imaging. Specific research topics have been defined between the invited participants.

Direct consequence of these common actions organized in the network of excellence initiated by the ONCO-MEDIA project, an agreement has been recently signed between CREATIS and BIL/SBIC around the early detection of stroke (analyze et validation of a detection assistance software based on diffusion/perfusion imaging). Beside, common researches related to the segmentation and the filtering of the brain CT images, have been initiated between IPAL, CREATIS, BIL/SBIC and Harbin Institute. Finally, common Merlion and Merlion PhD proposals (French Embassy of Singapore) have been envisaged for 2008 between entre LMI/SBIC and CREATIS (molecular imaging) and between IPAL and CREATIS (breast cancer). Common proposals are envisaged also for the ANR TECSAN framework in 2008/2009.

Organisation d'une réunion scientifique restreinte (sur invitation) sur la bio-imagerie médicale – SFBI 07, 27 août 2006, Lyon, France

Suite à SFBI'06, cette réunion scientifique restreinte (sur invitation) -SFBI'07 -, organisée par l'IPAL en collaboration avec les mêmes partenaires CREATIS et SBIC (Singapore Bioimaging Consortium) a eu comme objectif de focaliser sur des collaborations précises entre les partenaires français et singapouriens, afin de définir les moyens concrets à mettre en place, ainsi que de finaliser le domaine d'intérêt commun. Les participants de taille :

- *CREATIS-LRMN, Lyon, France,*
- *IPAL CNRS/NUS/I2R/UJF, Singapour,*

- Harbin Institute of Technology, Harbin, Chine,
- I3S, Université de Nice - Sophia Antipolis, France,
- Singapore Bioimaging Consortium, BiolImaging Lab, Singapour,
- I2R / Media Division, Singapore,
- SBIC / Laboratory of Molecular Imaging, Singapour,
- CEA-LETI, Grenoble, France et
- l'Université de Genève, Suisse

ont ainsi défini deux domaines d'intérêt : informatique médicale et l'imagerie moléculaire, avec des thématiques scientifiques et des actions précises définies entre les participants.

Conséquence de ces actions consécutives, une convention a été signée récemment entre CREATIS et BIL/SBIC autour de la problématique de l'attaque cérébrale (analyse et validation d'un logiciel de détection de l'attaque cérébrale basée sur l'imagerie de type diffusion /perfusion), problématique sur laquelle IPAL travaille avec ses partenaires (SGH) dans le cadre du projet ONCO-MEDIA. Par ailleurs des recherches communes sur la segmentation et le filtrage des images de CT du cerveau sont initiées entre IPAL, CREATIS, le BIL/SBIC et le centre Harbin. Enfin, des propositions de projet Merlion et Merlion PhD sont envisagées pour 2008 entre LMI/SBIC et CREATIS (imagerie moléculaire) et entre IPAL et CREATIS (autour du cancer du sein). Des liens sont possibles dans le cadre ANR TECSAN.

4) ONCO-MEDIA special session in MIST 2007, 19 November 2007, WAN-FANG Hospital, Taipei, Taiwan

An important Asian event of ONCO-MEDIA has been organized on the 19th of November 2007 at the Wan Fang Hospital of Taipei. This special session in MIST 2007 (International Medical Informatics Symposium in Taipei) allowed to share the first experiences around Evidence based medicine and its use for teaching and research in the Asian hospitals.

Organisation d'une session spéciale ONCO-MEDIA / MIST le 19 novembre 2007 à l'hôpital Wan-Fang de Taipei, Taiwan.

Dans le cadre du projet ONCO-MEDIA, une session spéciale dédiée aux problématiques de la recherche d'images médicales basée sur le contenu, a été organisée le 19 novembre 2007 au sein de l'hôpital Wan Fang de Taipei, Taiwan, dans le cadre de MIST 2007 (International Medical Informatics Symposium in Taipei). Ce symposium (dont le descriptif est détaillé dans le bilan ONCO-MEDIA et sur le site web ONCO-MEDIA) a permis de communiquer autour du projet et de partager les premières expériences en médecine factuelle des hôpitaux de Taiwan.

5) Workshop ONCO-MEDIA – AIST, Tsukuba, Japan, 18-19 July 2007

Co-organized and hosted by AIST (National Institute of Advanced Industrial Science and Technology) – the major public research organism in Japan, with the involvement of the Japanese center for Grid computing, AIST cluster and of HMI research group in AIST, this very fruitful and high-level scientific workshop, recorded a number of 16 presentations, from which 8 of the Onco-Media partners. Allowing exchanges around the new imaging technologies as the elastography and around the use of the Grid computation for medical imaging, this workshop was one of the most effective ONCO-MEDIA events.

- *AIST - National Institute of Advanced Industrial Science and Technology, Japan's largest public research organization*
- *With the participation of the GRID Center, AIST Cluster system and AIST interface research group*
- *8 oral presentations of ONCO-MEDIA partners among a total of 16 presentations*

Workshop ONCO-MEDIA – AIST, Tsukuba, Japon, 18-19 Juillet 2007

Co-organisé et accueilli par l'AIST (National Institute of Advanced Industrial Science and Technology) – l'organisme public majeur de recherche au Japon, avec la participation du centre de GRID computing, AIST cluster et du groupe de recherche en AIST interfaces, ce workshop très riche en échange, et d'un niveau scientifique des présentations très élevé, a enregistré un nombre de 16 présentations, dont 8 des partenaires Onco-Media. Permettant d'échanger autour des moyens de calcul de type GRID dans l'imagerie médicale, ainsi que sur les techniques innovantes d'imagerie médicale comme l'élastographie, ce workshop a été un des plus fructueux événement impliquant l'IPAL en tant que co-organisateur. Un descriptif ce symposium est présenté dans le bilan ONCO-MEDIA:

AIST - National Institute of Advanced Industrial Science and Technology, Japan's largest public research organization

With the participation of the GRID Center, AIST Cluster system and AIST interface research group

8 oral presentations of ONCO-MEDIA partners among a total of 16 presentations

6) ONCO-MEDIA special session in the annual meeting of JAMIT, Tsukuba, Japan, 20th of July 2007

Entitled « Ontology and Context Related Medical Image Distributed Intelligent Access » following the name of the ONCO-MEDIA project, this special session hosted by the annual meeting of the distinguished JAMIT (Japanese Society of Medical Imaging Technology), has been followed by a special issue in the main Japanese journal of medical imaging: Medical Imaging Technology issued in November 2007. Another original publication in the same journal has been published in January 2008, related to the ONCO-MEDIA topic.

- *JAMIT - Japanese Society of Medical Imaging Technology*
- *6 oral presentations of ONCO-MEDIA partners*
- *Special issue in the Medical Imaging Technology journal*
 - ✓ *6 journal publications*
 - ✓ *1 original publication in Medical Imaging Technology journal*

Session spécial ONCO-MEDIA dans le cadre de la réunion annuelle de JAMIT, Tsukuba, Japon, 20 Juillet 2007

Intitulée: « Ontology and Context Related Medical Image Distributed Intelligent Access » d'après le nom du projet ONCO-MEDIA, cette session spéciale organisée dans le cadre de la réunion annuelle de la très distinguée société japonaise d'imagerie médicale : JAMIT

(Japanese Society of Medical Imaging Technology), a été suivie par un numéro spécial dans la revue japonaise d'imagerie médicale : *Medical Imaging Technology* issue en novembre 2007. Une publication originale a aussi été publiée en janvier 2008, en liaison avec le projet ONCO-MEDIA.

7) ICT4Health, first International Symposium on ICT For Health, February 29th-1st March 2008, Ateneo de Manila University, Manila, Philippines

The International Symposium on ICT For Health (ICT4Health 2008) aimed to provide a forum for research and information exchange among healthcare practitioners, ICT professionals, researchers, faculty, students and various institutions engaged in ICT and Health (academia, government, industry, NGOs, etc.). Based on the important role played by the Information and Communications Technology (ICT) in healthcare delivery, especially in many developing countries and communities, ICT4Health 2008 included a Workshop on Apoptosis and Cancer, a session on Medical Imaging, Instrumentation and Informatics, and a Research Collaboration Forum Between the Philippines and the other ONCO-MEDIA partners.

ICT4Health, premier Symposium International sur l'utilisation des Sciences et Technologies de l'Information et Communication pour la santé, 29 février – 1^{er} mars, 2008, Université Ateneo de Manila, Manille Philippines

Le symposium international ICT4Health 2008, organisé en collaboration avec l'Université Ateneo de Manille a eu comme objectif de générer et promouvoir une plateforme d'échange / réseau d'excellence parmi les professionnels de la santé, les chercheurs, les universitaires et les différentes institutions engagées dans l'utilisation des STIC pour la santé (gouvernement, industries, etc.). Basée sur le rôle essentiel de l'information dans la médecine moderne, cette thématique prend une importance toute particulière dans les pays en voie de développement, où la technologie peut aider à maintenir un standard élevé de soin, même dans les cas les plus difficiles et dans les endroits les plus inaccessibles, comme les 7107 îles recensées aux Philippines. En tant que coorganisateurs de cet évènement, nous avons été très agréablement surpris par la qualité de la contribution logistique de nos partenaires locaux, de la qualité scientifique des projets présentés, ainsi que par la qualité des questions (souvent de la part des étudiants locaux) survenues durant les échanges, tables rondes.

Ce symposium a constitué donc un grand succès pour notre projet, en incluant un workshop sur le cancer, une session dédiée à l'imagerie médicale, instrumentation et informatique médicale, ainsi qu'un forum d'échange/collaboration entre les Philippines et les autres partenaires du projet.

8) SinFra'09 - Singaporean-French IPAL Symposium, 18–20 février 2009, Fusionopolis, Singapour – Tutoriaux et Sessions Scientifiques (100 pers.) (Keynote - Joseph Sifakis, 2007 ACM Turing award winner).

Une des premières actions entreprises lors de ma prise de fonctions en tant que Directeur de l'IPAL (sept 2008) a été d'organiser un symposium franco-singapourien – intitulé SinFra'09: Symposium Franco-Singapourien d'IPAL (Singaporean-French IPAL

Symposium) – permettant de renforcer les collaborations scientifiques existantes entre les chercheurs français et les chercheurs singapouriens. Un des rôles majeurs de ce symposium a aussi été d'attirer des chercheurs français en quête d'une expérience internationale enrichissante dans un milieu anglophone et hautement compétitif.

Ce symposium a proposé des tutoriaux et des sessions scientifiques et technologiques avancées dans des domaines scientifiques d'intérêt commun majeur pour la recherche française et singapourienne. A cette occasion, un recueil de publications sélectionnées (taux de sélection 33%) a été publié dans les actes du Symposium (actes indexés ISBN).

SinFra'09 a réuni des personnalités de marque des domaines d'intérêt communs entre la France et Singapour. Nous avons ainsi eu l'honneur d'accueillir des conférenciers invités de niveau exceptionnel, en la personne de Joseph Sifakis (UJF), lauréat en 2007 du prix A.M. Turing, ainsi que de Tat-Seng Chua (NUS), personnalité de renommée mondiale dans le domaine de l'indexation et la recherche multimédia par le contenu.

9) SFBI 2011 – Singaporean - French Biolmaging Seminar 2011, 24-25 février. 2011, Biopolis, Singapour, (Keynote – Mathias Fink).

*CNRS, France and A*STAR, Singapore via the IPAL lab and in association with UPD and NUS organized an international two-day workshop on bio-imaging from physics and signal acquisition issues to the visual exploitation of such biological/clinical images. This workshop will highlight the new acquisition devices, integrated software and processing platforms set up by first-class research teams mostly in Singapore and France. Special speakers from Europe or South East Asia will be invited to extend the circle of potential collaborations or to share experience.*

*This joint workshop relies on the participation of two major university partners: University Paris Descartes - France (UPD), one of the world leading universities in Biological and Medical research and National University of Singapore (NUS), one of the world leading universities in Science and Engineering. The two national research centers are also key players of the event: A*STAR and JCO for the Singaporean part and CNRS for the French part. ONCO-MEDIA budget was used to support the preparation of this workshop by co-supporting with the CNRS, Amel Denappe.*

The goal of this event is to establish or strengthen research and educational relationships between French and Singaporean higher education partners about medical imaging. In addition, the workshop logically aims at establishing strong collaborations between these two world-class research locations. In particular, research projects carried out within the three consortiums SBIC, BMRC and SERC located at Biopolis and Fusionopolis will be presented during these two days. The French university partner (UPD) is currently setting up new research centers of excellence and a new master degree involving bio-engineering and bio-imaging topics:

- a BioMedical Engineering Master Program with 100% of courses and examinations in English in the heart of Research Facilities in Paris and involving major Engineering High Schools: <http://www.bme-paris.org/>
- a Research Center about Bio-Imaging with innovative imaging facilities like Electron Paramagnetic Resonance (<http://idv.parisdescartes.fr/> in French for now)
- a Research Center of Excellence about NeuroSciences.

8. Other common meetings between ONCO-MEDIA partners

- ONCO-MEDIA first general meeting
 - ✓ 5-6 Dec 2006, IPAL-I2R, Singapore
 - ✓ Define the common interest fields, application and topics
 - ✓ Introduce the local capabilities in term of ontologies, grid computing, high parallel computing
- ONCO-MEDIA European meeting - Geneva
 - ✓ 16 January 2007, UNIGE, Geneva, Switzerland
 - ✓ Delineate common interest fields, possible exchanges, local collaborations
 - Interest of UNIGE in bone fractures and interstitial lung disease (ILD)
 - 2 possible exchanges in those fields with ONCO-MEDIA partners
 - Confirmation of the possibility to dispose of the CLEF database for your own tests/validations
- Joint meeting IPAL - CASIA
 - ✓ 15-16th of April 2007, Beijing - LIAMA/CASIA/BICD - Brain Imaging and Cognitive Disorders
 - ✓ Visit of Chinese General Hospital of Beijing and Air Force Hospital of Beijing
 - Interest of LIAMA into dementia topic and into host students related to this topic
 - ✓ The Chinese General Hospital agrees to make available to all the interested partners of ONCO-MEDIA project, a huge medical image database about head CT, MRI and relevant medical reports (in Chinese), which is about 4TB, starting from the year 1995
- EU COST (European Cooperation in the field of Scientific and technical Research) Workshop on Smart Health Care
 - ✓ Dubrovnik, Croatia, on May 31 to June 1, 2007.
 - ✓ Pr. Heng-Shuen Chen (NTU) - presentation of ONCO-MEDIA project in the frame of Ubiquitous Healthcare - Smart Health Care approaches
- Other bilateral meetings between partners
 - ✓ IPAL/NUS - NTU – Taipei, January 2007
 - ✓ Common statements about Healthcom 2007
- ATENEO – IPAL/NUS – Singapore, February 2007
 - ✓ Possibility of exchanges in the breast cancer field
- I3S – ATENEO – Manila, July 2007
 - ✓ Johan Montagnat courses in Manila
 - ✓ Interaction with ATENEO staff in the field of medical grid computing

9. Common Scientific Publications and Publication issued from ONCO-MEDIA Common Events

The scientific publications mentioned in this report are issued from ONCO-MEDIA common actions and from common researches leaded between the ONCO-MEDIA partners.

These publications are mainly related to:

- SFBI'06 - First Singaporean-French Biomedical Imaging Workshop, 12-13 October 2006, Biopolis, Singapore, Co-organised by Daniel Racoceanu (IPAL) and Hugues Benoit Cattin (CREATIS) - 6 publications in SFBI'06 Proceedings involving ONCO-MEDIA partners.
- AIRS 2006 – Asian Information Retrieval Symposium, 18 Oct. 2006, Singapore, Organized by Daniel Racoceanu (IPAL) - 3 publications issued in Lecture Notes for Computer Science (LNCS) and 2 invited talks – partners from ONCO-MEDIA.
- HealthGrid 2007 Conference, 24-27 April 2007, Geneva, Switzerland, co-organizer – Henning Muller (Geneva University Hospital), ONCO-MEDIA common publication - poster session – presentation by Prof. Hugues Benoit-Cattin (CREATIS)
- Conference IEEE Healthcom 2007, June 19-22, 2007, Taipei, Taiwan, Co-organizer – Heng-Shuen Chen (National Taiwan University), Dr. Toshiharu Nakai – invited speaker, A/Prof Wee-Kheng Leow (NUS/IPAL) – scientific committee
- AIST-ONCO-MEDIA Workshop, 18-19 July 2007, Tsukuba, Japan, 8 oral presentations
- JAMIIT- ONCO-MEDIA Special Session, 20th of July 2007, Tsukuba, Japan, 4 oral presentations
 - International Journal of Medical Imaging Technology (MIT), Special Issue of November 2007 - Ontology and Context Related Medical Image Distributed Intelligent Access - 6 journal publications and one original journal publication issued in the volume of January of MIT
 - MIST 2007 – ONCO-MEDIA workshop, Taipei, 19th of November 2007, 6 presentations from ONCO-MEDIA partners
 - One original publication and a Common special issue in the PITJ - Philippines Information Technology Journal (in reviewing process)

SFBI 2011 – 1 proceeding with the communications at the conference.

In addition, we indicate the research reports issued from common researches between ONCO-MEDIA partners.

Globally, we can than assess:

12	<i>Publications in International Journal with reviewing committee</i>
7	<i>Conferences Invitee</i>
3	<i>Proceedings Edition</i>
3	<i>Book chapters</i>
2	<i>Copyrights</i>
20	<i>International Conferences with Proceedings</i>
23	<i>Oral communications in International workshops</i>
7	<i>Master degree reports</i>
3	<i>PhD reports</i>

The detail of the publication is presented by next:

1) International Journals

- [CMIG, 2010] Chao-Hui Huang, Antoine Veillard, Ludovic Roux, Nicolas Loménie, Daniel Racoceanu, Time-efficient sparse analysis of histopathological Whole Slide Images, Whole Slide Image Process, Special Issue, CMIG - Computerized Medical Imaging and Graphics, DOI: 10.1016/j.compmedimag.2010.11.009, ISSN: 0895-6111, 2010.
- [AIMM, 2010] Adrien Depeursinge, Daniel Racoceanu, Jimison lavindrasana, Gilles Cohen, Alexandra Platon, Pierre-Alexandre Poletti, Henning Muller, Fusing visual and clinical information for lung tissue classification in high-resolution computed tomography, Artificial Intelligence in Medicine, Knowledge Discovery and Computer-Based Decision Support in Biomedicine, Volume 50, Issue 1, September 2010, pp. 13-21, ISSN 0933-3657.
- [MMRS, 2008] Toshiharu Nakai, Epifanio Bagarinao, Yoshio Tanaka, Kayato Matsuo, Daniel Racoceanu, Ontology for fMRI as a Biomedical Informatics Method, Magn. Reson. Med., Vol. 7, No. 3, 2008, pp. 141-155.
- [NInf, 2008] Bagarinao E, Matsuo K, Nakai T, Tanaka Y, BAX: A Toolbox for the Dynamic Analysis of Functional MRI Datasets, Neuroinformatics 6, 2008 (in press, online published on May 9, 2008).
- [NIImg, 2008] Bagarinao E, Tanaka Y, Matsuo K, Nakai T, Enabling the Sharing of Functional MRI Datasets with BAXSQL, 14th Annual Meeting of Organization for Human Brain Mapping, NeuroImage 41, S1-142, 2008.
- [PITJ, 2008] Epifano Bagarinao, Toshiharu Nakai, Yoshio Tanaka, Medical Grid Technologies for Brain Studies, Philippines Information Technology Journal, vol. 1, no. 1, February 2008, pp.3-7.
- [MIT, 2008] Roxana Teodorescu, Daniel Racoceanu, Wee-Kheng Leow and Vladimir Cretu, Prospective Study for Semantic Inter-Media Fusion in Content-Based Medical Image Retrieval, original paper, Medical Imaging Technology, Vol.26, No.1, January 2008, pp.1-11.
- [MIT, 2007a] Patrick Brezillon, Daniel Racoceanu, A Context Model for Content Based Medical Image Retrieval, Medical Imaging Technology, Special Issue on Ontology and Context Related Medical Image Distributed Intelligent Access, Vol.25 No.5 novembre 2007, pp.327-332.
- [MIT, 2007b] Mei-Ju Su, Heng-Shuen Chen, Chung-Yi Yang, Sao-Jie Chen, Robert Chen, Wen-Jeng Lee, Po-Hsun Chen, Ping-Kung Yip, Hon-Mon Liu, Fei-Pei Lai, Daniel Racoceanu, Diagnostic Decision Support by Intelligent Medical Image Retrieval with Electrical Medical Record Enhance Dementia Treatment, Medical Imaging Technology, Special Issue on Ontology and Context Related Medical Image Distributed Intelligent Access, Vol.25 No. 5 novembre 2007, pp.350-355.
- [MIT, 2007c] Johan Montagnat,Tristan Glatard, Diane Lingrand, Texture-based Medical Image Indexing and Retrieval on Grids, Medical Imaging Technology, Vol.25, No.5, November 2007, pp.333-338. [pdf]
- [MIT, 2007d] Yoshio Tanaka, Status and Future Direction of Grid Computing, Medical Imaging Technology, Vol.25, No.5, November 2007, pp.339-343. [pdf]
- [MIT, 2007e] Epifanio Bagarinao, Yoshio Tanaka, Toshiharu Nakai, Building Grid-Based Applications for the Management and Analysis of Neuroimaging Data Sets for the Medical Grid, Medical Imaging Technology, Vol.25, No.5, November 2007, pp.344-349. [pdf]

[MIT, 2007f] *Asmâa Hidki, Adrien Depeursinge, Henning Muller, The MedGIFT project: Global perspectives of a medical doctor, Medical Imaging Technology, Vol.25, No.5, November 2007, pp.356-361.*

2) Conference invitee

- [MODEL 2011] *Ludovic Roux and Daniel Racoceanu, healthcare and wellbeing initiatives in IPAL and their impact on the environment, keynote, MODEL 2011: Workshop on ICT for the Environment, Silliman University, Dumaguete City, October 20 - 22, 2011.*
- [ISGC, 2008] *Rafael P. Saldana, Grid Computing for Health and the Environment: Experiences and Perspectives in the Philippines, Invited speaker, International Symposium on Grid Computing – ISGC 2008, Academia Sinica, Taipei, Taiwan, 7-11 April 2008.*
- [ICT4Health, 2008] *Daniel Racoceanu, Medical Image/Case Based Reasoning using Medical Knowledge to improve Diagnosis Assistance. Showcases: Early Diagnosis of Brain stroke from brain CT, Ultrasound Guided Biopsy for Breast Cancer Diagnosis, First International Symposium on ICT for Health (ICT4Health 2008), Keynote Lecture, February 29th-1st March 2008, Ateneo de Manila University, Manila, Philippines.*
- [ICT ASIA, 2007a] *Heng-Shuen Chen, From Rural Telemedicine to National Health Informatics Project -Taiwan Experience, 5th ICT-Asia Regional Seminar, Taipei, Taiwan, Nov 19-21, 2007.*
- [ICT ASIA, 2007b] *Rafael Saldaña, Medical Image Analysis and Information Retrieval with Grid Computing Applications, 5th ICT-Asia Regional Seminar, Taipei, Taiwan, Nov 19-21, 2007.*
- [Healthcom, 2007] *Toshiharu Nakai, IEEE Healthcom 2007, Keynote Lecture, International Convention Center, National Taiwan University Hospital, Taipei, Taiwan, June 22, 2007.*
- [AIRS, 2006inv-a] *Isabelle Magnin, Hugues Benoit-Cattin, Johan Montagnat, Medical grid, Invited talk, Medical Image Retrieval Special Session, Asian Information Retrieval Symposium, Singapore 16-18 Oct. 2006.*
- [AIRS, 2006inv-b] *Patrick Brézillon, Context-awareness: Application to the medical image management, Invited talk, Medical Image Retrieval Special Session, Asian Information Retrieval Symposium, Singapore 16-18 Oct. 2006.*

3) Edition proceedings et numéros spéciaux de journaux scientifiques

- [SFBI, 2011] *N. Lomérie, Daniel Racoceanu and Alexandre Gouaillard (Editors), Advances in Bio-Imaging: from Physics to Signal Understanding Issues, Springer Series Advances in Intelligent and Soft Computing, proceedings from the international seminar www.sfbi2011.org (to be published in June/July 2011)*
- [SinFra, 2009] *Wee-Kheng Leow, Ding Feng, Hao Li, Daniel Racoceanu, SinFra'09 - Singaporean-French IPAL Symposium, Proceedings of the symposium with the selected publications, ISBN: 978-981-4277-55-6(CD) / 981-4277-55-X(CD), 18-20 February 2009, Fusionopolis & Institute for Mathematical Sciences, Singapore.*
- [JAMIT, 2007] *Toshiharu Nakai, Daniel Racoceanu, Special Issue on ONtology and COntext related MEDical image Distributed Intelligent Access, International Symposium of the 26th Annual Meeting of Japanese*

Society for Medical Imaging Technology (JAMIT), Tsukuba International Convention Center, 20 July 2007, Tsukuba, Japan, *Medical Imaging Technology*, Vol.25 No.5, November 2007.

4) Book Chapter

- [INTECH, 2011b] Roxana Oana Teodorescu, Vladimir Ioan Cretu and Daniel Racoceanu, *Medical Image Processing and Analysis for Parkinson's Disease Diagnosis and Prognosis*, "Biomedical Engineering, Trends, Researches and Technologies", InTech, 2011, in press.
- [INTECH, 2010] Mei-Ju Su, Po-Hsun Cheng, Sao-Jie Chen, Chung-Yi Yang, Ping-Kung Yip, Daniel Racoceanu and Heng-Shuen Chen, *Medical Image Intelligent Access Integrated with Electronic Medical Records System for Brain Degenerative Disease, Data Storage*, Book edited by: Florin Balasa, ISBN: 978-953-307-063-6, Publisher: InTech, Publishing date: April 2010, pp. 201-211.
- [LNCS, 2007] Caroline Lacoste, Jean-Pierre Chevallet, Joo-Hwee Lim, Diem Le Thi Hoang, Xiong Wei, Daniel Racoceanu, Roxana Teodorescu and Nicolas Vuillenemot, *Inter-Media Concept-Based Medical Image Indexing and Retrieval with UMLS at IPAL*, in Lecture Notes in Computer Science, *Evaluation of Multilingual and Multi-modal Information Retrieval*, vol. 4730/2007, pages 694-701, 2007.

5) Copyrights

- [PDFibAtl@s, 2010] Déclaration logicielle (PDFibAtl@s) déposée le 16 décembre 2010 auprès du CNRS, sur un système de détection et de pronostic de la maladie de Parkinson par fusion d'informations extraites d'images médicales par résonance magnétique nucléaire (IRM) basées sur le gradient de diffusion (images du tenseur de diffusion - DTI) ; Approuvée le 13 mai 2011 sous la référence CNRS DL 04137-01 pour l'UMI 2955.
- [HISTOGRAD, 2009] Virtual microscope for breast cancer grading (HISTOGRAD) CNRS-NUS-UJF-I2R - Singapore/France, copyright DI 2944-01 for the international research unit UMI CNRS 2955, Copyright granted in June 2009. (Dépôt APP - N° d'enregistrement : IDDN.fr.001.190019.000.S.P. 2010.000.20900 en date du 14 Mai 2010).

6) Communications to international Conferences and Symposiums with proceedings

- [ICPR, 2010] Antoine Veillard, Nicolas Lomenie, Daniel Racoceanu, *An Exploration Scheme for Large Images: application to Breast Cancer Grading*, International Conference on Pattern Recognition, ICPR'2010, Istanbul, Turkey, August 23-26, 2010.
- [IJCNN, 2010] Chao-Hui Huang, Daniel Racoceanu, Ludovic Roux and Thomas Putti, *Bio-inspired Computer Visual System using GPU and Visual Pattern Assessment Language (ViPAL): Application on Breast Cancer Prognosis*, IJCNN 2010, Barcelona, Spain, July 18-23, 2010.
- [ECT, 2010] Nicolas Lomenie, Daniel Racoceanu, Ludovic Roux, *The MICO platform: cognitive virtual microscopy for breast cancer grading*, 10th

- European Congress on Telepathology and 4th International Congress on Virtual Microscopy, Vilnius, Lithuania, 1-3 July 2010.*
- [SPIE, 2010] *Roxana Teodorescu, Daniel Racoceanu, Nicolas Smit, Vladimir Ioan Cretu, Eng King Tan, Ling-Ling Chan, Parkinson's disease prediction using diffusion-based atlas, SPIE Medical Imaging, Feb. 13-18, 2010, San Diego, California USA.*
- [WACV, 2009] *Jean-Romain Dalle, Hao Li, Chao-Hui Huang, Wee Kheng Leow, Daniel Racoceanu and Thomas Putti, Nuclear Pleomorphism Scoring by Selective Cell Nuclei Detection, 2009 IEEE Workshop on Applications of Computer Vision (WACV 2009), December 7-8, 2009, Snowbird, Utah, US.*
- [RSNA, 2009] *R. O. Teodorescu, D. Racoceanu, V. Cretu, H. Müller, K-O. Lovblad, L-L. Chan, Parkinson's disease detection using 3D Brain MRI FA map histograms correlated with tract directions, RSNA 2009, 95th Radiological Society of North America Scientific Conference and Annual Meeting, November 29 to December 4, 2009, McCormick Place, Chicago, Illinois, USA.*
- [Healthcom, 2008] *Mei-Ju(Merri) Su, Huei-Ming Ma, Chow-In Ko, Wen-Chu Chiang, Chih-Wei YangSao-Jie Chen, Robert Chen and Heng-Shuen Chen, Application of tele-Ultrasound in Medical Emergency Service, Healthcom 2008, 10th International Conference on e-Health networking, Application & Services, 7-9 July 2008, Biopolis, Singapore, best paper award finalist.*
- [BMEI, 2008] *Adina Eunice Tutac, Daniel Racoceanu, Thomas Putti, Wei Xiong, Wee-Kheng Leow, Vladimir Cretu, Knowledge-Guided Semantic Indexing of Breast Cancer Histopathology Images, BMEI2008, International Conference on BioMedical Engineering and Informatics, 27 - 30 May 2008, Sanya, Hainan, China.*
- [ICT4Health, 2008a] *Jiang Liu, Joo Hwee Lim, Daniel Racoceanu, Wong Wing Kee Damon, Huiqi Li, Leaking detection for Medical image segmentation, First International Symposium on ICT For Health (ICT4Health 2008), February 29th-1st March 2008, Ateneo de Manila University, Manila, Philippines.*
- [ICT4Health, 2008b] *Sorina Camarasu, Hugues Benoit-Cattin, Johan Montagnat, Daniel Racoceanu, Content-Based Medical Image Indexing and Retrieval on Grids, First International Symposium on ICT For Health (ICT4Health 2008), February 29th-1st March 2008, Ateneo de Manila University, Manila, Philippines.*
- [ICT4Health, 2008c] *Patrick Brezillion, Medical Context, First International Symposium on ICT For Health (ICT4Health 2008), February 29th-1st March 2008, Ateneo de Manila University, Manila, Philippines.*
- [ICT4Health, 2008d] *Andrei Coronel and Rafael Saldaña, Towards a Philippine Cancer Grid, First International Symposium on ICT For Health (ICT4Health 2008), February 29th-1st March 2008, Ateneo de Manila University, Manila, Philippines.*
- [ICT4Health, 2008e] *Jean-Romain Dalle, Daniel Racoceanu, Wee-Kheng Leow, and Thomas Putti, Contribution to Automated Breast Cancer Grading on Hispatological Images, First International Symposium on ICT For Health (ICT4Health 2008), February 29th-1st March 2008, Ateneo de Manila University, Manila, Philippines.*

- [ICT4Health, 2008f] Dianne Lingrand, Johan Montagnat and Tristan Glatard, *Estimation of Latency on Production Grid Over Several Weeks*, First International Symposium on ICT For Health (ICT4Health 2008), February 29th-1st March 2008, Ateneo de Manila University, Manila, Philippines.
- [ICT4Health, 2008g] Epifanio Bagarinao, Toshiharu Nakai, and Yoshio Tanaka, *Medical Grid: Using Grid Technology for Brain Studies*, First International Symposium on ICT For Health (ICT4Health 2008), February 29th-1st March 2008, Ateneo de Manila University, Manila, Philippines.
- [ICT4Health, 2008h] Xin Zhou, Mikko Pitkanen, Adrien Depeursinge, and Henning Muller, *A Medical Image Retrieval Application Using Grid Technologies To Speed Up Feature Extraction*, First International Symposium on ICT For Health (ICT4Health 2008), February 29th-1st March 2008, Ateneo de Manila University, Manila, Philippines.
- [HealthGrid, 2007] ONCO-MEDIA consortium (PI: Daniel Racoceanu, co-PIs: Hugues Benoit-Cattin, Patrick Brezillon, Heng-Shuen Chen, Tianzi Jiang, Serge Miquet, Henning Muller, Toshiharu Nakai, Johan Montagnet, Rafael P. Saldaña, Collaborators: Ling-Ling Chan, Jean-Pierre Chevallot, Mun Kew Leong, Wee Keng Leow, Joo-Hwee Lim, Diane Lingrand, Pablo Manalastas, Brigitte Morello, Bo Qiu, Patrick Ruch, Luis F. G. Sarmenta, Shih-Chang Wang, Noureddine Zerhouni), The ONCO-MEDIA project challenges, HealthGrid 2007 Conference, Poster Session, 24-27 April 2007, Geneva, Switzerland.
- [AIRS, 2006a] Bo Qiu, Daniel Racoceanu, Chang Sheng Xu, Qi Tian, *STRIPE: Image feature based on a new grid method and its application in ImageCLEF*, Lecture Notes in Computer Science, Springer Berlin/Heidelberg, H.T. Ng et al. (Eds.): Asian Information Retrieval Symposium, Singapore 16-18 Oct. 2006, Volume 4182/2006, ISSN 0302-9743, ISBN 978-3-540-45780-0, pp. 489-496.
- [AIRS, 2006b] Henning Muller, Joris Heuberger, Adrien Depeursinge, Antoine Geissbuhler, *Automated Object Extraction for Medical Image Retrieval Using the Insight Toolkit (ITK)*, Lecture Notes in Computer Science, Springer Berlin/Heidelberg, H.T. Ng et al. (Eds.): Asian Information Retrieval Symposium, Singapore 16-18 Oct. 2006, Volume 4182/2006, ISSN 0302-9743, ISBN 978-3-540-45780-0, pp. 476–488.
- [AIRS, 2006c] Daniel Racoceanu, Caroline Lacoste, Roxana Teodorescu and Nicolas Vuillemenot, *A semantic fusion approach between medical images and reports using UMLS*, Lecture Notes in Computer Science, Springer Berlin/Heidelberg, H.T. Ng et al. (Eds.): Asian Information Retrieval Symposium, Singapore 16-18 Oct. 2006, Volume 4182/2006, ISSN 0302-9743, ISBN 978-3-540-45780-0, pp. 460–475.

7) Communications in international workshops

- [ICT-ASIA, 2008a] Heng-Shuen Chen, *From Rural Telemedicine to National Health Informatics Project -Taiwan Experience*, 5th ICT-Asia Regional Seminar, Taipei, Taiwan, Nov 19-21, 2007.
- [ICT-ASIA, 2008b] Rafael Saldaña, *Medical Image Analysis and Information Retrieval with Grid Computing Applications*, 5th ICT-Asia Regional Seminar, Taipei, Taiwan, Nov 19-21, 2007.
- [MIST, 2007a] Toshiharu Nakai, Kayako Matsuo, Epifanio Bagarinao, *Data Management for Neuroimaging in Medical GRID*, ONCO-MEDIA -

- MIST 2007 workshop, Hualien-Taipei, Wan-Fang Hospital, Taipei, Taiwan, November 15-19, 2007.*
- [MIST, 2007b] *Rafael Saldaña, A Web-Based Query and Retrieval System of Federated DICOM Image Archives, ONCO-MEDIA - MIST 2007 workshop, Hualien-Taipei, Wan-Fang Hospital, Taipei, Taiwan, November 15-19, 2007. [slides]*
- [MIST, 2007c] *Mei-Ju Su, Heng-Shuen Chen, Hon-Mon Liu, Ping-Keung Yip, Wen-Yih I. Tseng, Diagnostic Decision Support by Intelligent Medical Image Retrieval with Electronic Medical Record for Dementia Treatment Enhancement, ONCO-MEDIA - MIST 2007 workshop, Hualien-Taipei, Wan-Fang Hospital, Taipei, Taiwan, November 15-19, 2007. [slides]*
- [MIST, 2007d] *Patrick Brezillon, Daniel Racoceanu, Contextual Approach in Image Processing. Application to cerebral MRI, ICT ONCO-MEDIA - MIST 2007 workshop, Hualien-Taipei, Wan-Fang Hospital, Taipei, Taiwan, November 15-19, 2007. [slides]*
- [MIST, 2007e] *Daniel Racoceanu, Jean-Romain Dalle, Bo Qiu, Ling-Ling Chan, Wee-Kheng Leow, Joo-Hwee Lim and Judy Tan Sock Pheng, Knowledge Based Approach for Stroke Diagnosis , ONCO-MEDIA – MIST'2007 workshop, International Medical Informatics Symposium in Taiwan, Hualien-Taipei, Wan-Fang Hospital, Taipei, Taiwan, November 15-19, 2007.*
- [MIST, 2007f] *Wee-Kheng Leow, MMedWeb (Multimedia Medical Conceptual Web for Intelligent Information Access) SERC-A*STAR project, ONCO-MEDIA – MIST'2007 workshop, International Medical Informatics Symposium in Taiwan, Hualien-Taipei, Wan-Fang Hospital, Taipei, Taiwan, November 15-19, 2007.*
- [AIST, 2007a] *Daniel Racoceanu - UML modeling of Semantic Inter-media Fusion in CBIR, AIST 2007 (National Institute of Advanced Industrial Science and Technology from Japan) - ONCO-MEDIA Workshop, 18-19 July 2007, Tsukuba, Japan.*
- [AIST, 2007b] *Patrick Brezillon, Daniel Racoceanu - A context model for CBIR, AIST 2007 (National Institute of Advanced Industrial Science and Technology from Japan) - ONCO-MEDIA Workshop, 18-19 July 2007, Tsukuba, Japan.*
- [AIST, 2007c] *Asmāa Hidiki - MedGIFT project, AIST 2007 (National Institute of Advanced Industrial Science and Technology from Japan) - ONCO-MEDIA Workshop, 18-19 July 2007, Tsukuba, Japan.*
- [AIST, 2007d] *Johan Montagnat - Texture-based medical image indexing, AIST 2007 (National Institute of Advanced Industrial Science and Technology from Japan) - ONCO-MEDIA Workshop, 18-19 July 2007, Tsukuba, Japan.*
- [AIST, 2007e] *Toshi Nakai & Epifanio Bagarino - Functional Neuroimaging Data Retrieval, AIST 2007 (National Institute of Advanced Industrial Science and Technology from Japan) - ONCO-MEDIA Workshop, 18-19 July 2007, Tsukuba, Japan.*
- [AIST, 2007f] *Yoshio Tanaka - Direction of GRID computing and e-science, AIST 2007 (National Institute of Advanced Industrial Science and Technology from Japan) - ONCO-MEDIA Workshop, 18-19 July 2007, Tsukuba, Japan.*
- [AIST, 2007g] *Rafael Saldaña - Watershed Algorithm and Latent Semantic Indexing, AIST 2007 (National Institute of Advanced Industrial Science and*

- Technology from Japan) - ONCO-MEDIA Workshop, 18-19 July 2007, Tsukuba, Japan.*
- [AIST, 2007h] *Heng-Shuen Chen & Mei-Ju Su - CBIR for Dementia Diagnosis, AIST 2007 (National Institute of Advanced Industrial Science and Technology from Japan) - ONCO-MEDIA Workshop, 18-19 July 2007, Tsukuba, Japan.*
- [WCAMG, 2007] *Tristan Glatard, Diane Lingrand, Johan Montagnat, Michel Riveill. Impact of the execution context on Grid job performances. International Workshop on Context-Awareness and Mobility in Grid Computing (WCAMG07), pp. 713--718, IEEE, Rio de Janeiro, may 2007.*
- [SFBI, 2006a] *Wee Kheng Leow, Feng Ding, Hao Li, Towards a generic framework for model-based segmentation of CT/MR images, Proceedings of SFBI'06 - First Singaporean-French Biomedical Imaging Workshop, 12-13 October 2006, Biopolis, Singapore.*
- [SFBI, 2006b] *J. Montagnat, T. Glatard, D. Lingrand, R. Texier, Exploiting production grid infrastructures for medical images analysis, Proceedings of SFBI'06 - First Singaporean-French Biomedical Imaging Workshop, 12-13 October 2006, Biopolis, Singapore.*
- [SFBI, 2006c] *D. Racoceanu, C. Lacoste, J.H. Lim, J.P. Chevallet, L. Thi Hoang Diem, X. Wei, Concept Based Intermedia Medical Indexing. Application on CLEF Medical Image with UMLS Metathesaurus, Proceedings of SFBI'06 - First Singaporean-French Biomedical Imaging Workshop, 12-13 October 2006, Biopolis, Singapore.*
- [SFBI, 2006d] *J.C.M. Teo, S.C. Wang, S.H. Teoh, Using Computational Fluid Dynamics (CFD) to Predict PMMA Intraosseous PMMA Cement Flow during Vertebroplasty, Proceedings of SFBI'06 - First Singaporean-French Biomedical Imaging Workshop, 12-13 October 2006, Biopolis, Singapore.*
- [SFBI, 2006e] *E.S.M. Lee, B. Shuter, B.C. Liu, J. Ding, K.C. Tam, M. Choolani, S.C. Wang, Cellular MRI: Cell Labelling using Superparamagnetic Microgels, Proceedings of SFBI'06 - First Singaporean-French Biomedical Imaging Workshop, 12-13 October 2006, Biopolis, Singapore.*
- [SFBI, 2006f] *P. Perriat, C. Rivière, C. Billotey, M. Janier, J.L. Coll, S. Roux, O. Tillement, New nanosized hybrid particles for biological detection and imaging, Proceedings of SFBI'06 - First Singaporean-French Biomedical Imaging Workshop, 12-13 October 2006, Biopolis, Singapore.*

8) Common Research Reports

- [Teodorescu, 2006] *Roxana Oana Teodorescu, Inter-media fusion for medical image indexing and retrieval, Master thesis, IPAL, September 2006.*
- [Qiu, 2007] *Zhenhua Qiu, High dimension vector space Content-Based Retrieval. Application to the detection and diagnosis assistance of the breast cancer from high resolution mammogram database. (Recherche d'images par le contenu en dimension élevée. Application à l'aide au dépistage du cancer du sein), Master thesis, graduate school of informatics of Lyon, IGI, LIRIS laboratory, June 2007.*

- [Tagzout , 2007] *Idir Tagzout, Image processing in terms of process. Application to the brain MRI (Le traitement d'image en termes de processus. Application aux images IRM cérébrales), Master Thesis, LIP6, Paris, June 2007.*
- [Garny, 2009] *Vincent Garny, Détection précoce de l'attaque cérébrale à partir d'images CT du cerveau, Rapport de master INSA Lyon, 2009 (collaboration IPAL-INSA Lyon)*
- [Rigaud, 2010] *Stéphane Rigaud, Suivi des cellules souches neuronales, Rapport de master UPMC, 2010 (collaboration IPAL-LIP6).*
- [Lesage, 2010] *Pierre Lesage, microscopie virtuelle pour la gradation du cancer du sein, rapport de master INMSA Lyon, 2010 (collaboration IPAL-INSA Lyon).*
- [Meziat, 2010] *Carole Meziat, detection des mitoses dans une lame virtuelle de biopsie, rapport de master INSA Lyon, 2010 (collaboration IPAL-INSA Lyon)*
- [Teodorescu, 2011] *Roxana Teodorescu, Pronostic de la maladie de Parkinson basé sur la fusion des caractéristiques d'Images par Résonance Magnétique de Diffusion, Thèse de doctorat, Université de Franche-Comté, soutenue le 11 avril 2011.*
- [Tutac, 2010] *Adina Eunice Tutac, Formal Representation and Reasoning for Microscopic Medical Image-Based Prognosis. Application to Breast Cancer Grading / Représentation et Raisonnement Formels pour le Pronostic basé sur l'Imagerie Médicale Microscopique. Application à la Graduation du Cancer du Sein", these de doctorat de l'Université de Franche-Comté, soutenue le 22 octobre 2010.*
- [Coronel, 2008] *Andrei Coronel, Building a Computational Ontology on Breast Cancer using Approximation Techniques and Medical Data, Docteur Université ATENEO de MANILA, Soutenance : Manille, Philippines, le 2 octobre 2008.*

10. Exchanges and collaborative researches

- LIP6 - IPAL
 - ✓ Research Master – M. Idir Tagzout (2007)
 - ✓ Image processing as process: Application to cerebral MRI
 - ✓ Master - Stéphane Rigaud – Modélisation des cellules dans les images biomédicales (Feb. – Sept. 2010)
- LIRIS - IPAL – CREATIS / INSA Lyon
 - ✓ Master – M. Zhenhua Qiu - High dimension vector space Content-Based Retrieval. Application to the detection and diagnosis assistance of the breast cancer from high-resolution mammograms database.
 - ✓ Master - Vincent Garny – Stroke Early Detection from Brain CT (Feb. – Sept. 2009)
 - ✓ Master - Pierre Lesage – Microscopie virtuelle pour le cancer du sein (Feb. – Sept. 2010).
 - ✓ Master - Carole Meziat – Detection de noyaux dans les images histopathologiques (Feb. – Sept. 2010)
 - ✓ Master - Hao Wang – Integration of the semantic middleware Setha in the virtual microscope (Feb. – Sept. 2011)

- IPAL – UFC/ISEN
 - ✓ *Master, M. Jean-Romain Dalle, March-Sept. 2007 - Early stroke detection from axial brain CT*
 - ✓ *Jean-Romain Dalle was Research Assistant at NUS from October 2007 to February 2010.*
- UFC/UPT – IPAL
 - ✓ *1 PhD - 3 months (Apr. to June 2007)*
 - ✓ *Design of the Intermedia Fusion Module of a UMLS-based Semantic Content-Based Medical Image Retrieval System*
 - ✓ *PhD oral defense: Roxana TEODORESCU, « Pronostic de la maladie de Parkinson basé sur la fusion des caractéristiques d'Images par Résonance Magnétique de Diffusion », thèse UFC en co-tutelle avec Univ. Polytechnique de Timisoara, soutenue le 11 avril 2011; co-encadrement Prof. Vladimir-Ioan CRETU (Univ. « Politehnica » de Timisoara) http://www.comp.nus.edu.sg/~danielr/pubs/PhD_supervised/PhD_RoxanaTEODORESCU.pdf (suite à sa formation doctorale, Roxana a obtenu une position post-doctorale pour 2 ans à Mount Sinai School of Medicine, New-York, Etats-Unis)*
 - ✓ *PhD oral defense: Adina TUTAC, « Représentation et Raisonnement Formels pour le Pronostic basé sur l'Imagerie Médicale Microscopique. Application à la Gradation du Cancer du Sein », Thèse UFC en co-tutelle avec Univ. Poly. Timisoara, soutenue le 22 oct. 2010, co-encadrement avec Prof. Vladimir-Ioan CRETU (Université « Politehnica » de Timisoara) <http://ipal.i2r.a-star.edu.sg/doc/publications/adinaThesis.pdf> (Adina est maintenant « research fellow » dans la société Roumano-Allemande Syonic, basée à Timisoara, en Roumanie, fabricants de carte à puce et de e-services de type « carte-vitale »)*
- UJF – IPAL
 - ✓ *1 PhD - 6 months (Apr. to June 2007 and April to June 2008)*
 - ✓ *CBIR and CBR for breast cancer grading diagnosis/prognosis assistance*
 - ✓ *Master - Humayun Irshad – Nov. 2010 – May 2011, in preparation of the UJF PhD funded by the ANR TecSan project MICO starting from May 2011.*
- IPAL – CREATIS
 - ✓ *Dr. Xian Du (recruited from NUS Singapore, with the implication of IPAL; PhD defended in NUS-MIT frame) - Oct. 2006 – Oct 2007*
- CREATIS – UNIGE
 - ✓ *M. Xin, Master Degree granted at CREATIS, recruited as PhD by UNIGE in Oct. 2006*
- IPAL – ATENEO
 - ✓ *Internship or M. Andrei CORONEL, PhD at ATENEO de MANILA, in IPAL Apr-July 2008*
 - ✓ *His PhD defense held successfully in Oct 2008: D. Racoceanu (CNRS) and W-K Leow were in the PhD panel list as reviewers. Andrei CORONEL : « Building a Computational Ontology on Breast Cancer using Approximation Techniques and Medical Data », Docteur Université ATENEO de MANILA, Soutenance : Manille, Philippines, le 2 octobre 2008. Jury : Vergara, A. Marcelo, R.Saldana (dir), D. Racoceanu (rapp), WK Leow (rapp).*

11. Financial assessment (Bilan des financements)

Financement de base 2006-2011:

- Montant reçu de la Coopération française par l'intermédiaire de l'AFD : 30 000 euros en 2006
- Montant reçu de la Coopération française par l'intermédiaire de l'AFD : 25 000 euros en 2009
- CNRS contribue à hauteur de 10 000 euros en 2006 et 10 000 euros en 2007.

Budget Total 2006-2011 : AFD : 55 000 euros, CNRS : 20 000 euros

D'autres partenaires français (ou européens) qui ont contribué également au financement (estimation) :

- I3S : Financement de 2 déplacements en Europe – 500 euros
- Ambassade de France aux Philippines : 5000 euros (ICT4Health) et 1000 euros (MODEL 2011)
- Ambassade de France à Singapour : 6 déplacements de Français à Singapour (KoM + AIRS 2006 + SFBI 2011) – 9000 euros
- LIP6 Paris – financement de 2 masters communs (projets internes) – 2500 euros
- LIRIS Lyon – 1 master – fonds propres – 2500 euros

Total estimé : 20 500 euros

Montant des contributions des partenaires asiatiques du projet (montant estimé)

- Japon : 100 000 euros (JAMIT et AIST/ONCO-MEDIA)
- Philippines : 15 000 euros (ICT4Health + Mobilité) + 3000 (MODEL 2011)
- Taiwan : 20 000 euros (MIST 2007)
- Singapour : 40 000 (SFBI'06, AIRS 2006, SFBI 2011)

Total estimé : 178 K€ euros

Autre contributions non mentionnées ci-dessus :

- Cofinancement des étudiants PhD sur des fonds provenant de projets locaux (Singapour, Japon, Taiwan)

Levé des fonds complémentaires pour des projets similaires avec des partenaires asiatiques

- Singapour (IPAL) A*STAR/JCO – 250 K€ (3 ans : 2007-2010)
- Philippines (ATENEO) – FP7 Projet Européen EUASIAGRID – 920 K€ (2 ans : 2008-2010)
- ANR TecSan – projet MICO, projet piloté par IPAL et impliquant LIP6/UPMC, partenaire ONCO-MEDIA a été labellisé en 2010 pour une valeur totale de 1200K€. Ce travail est une des continuations les plus marquantes du projet ONCO-MEDIA.

Résumé bilan financier:

	1ère période	2ème période	Total
Subvention MAEE	30 K€	25 K€	55 K€
Participation CNRS	10 K€	10 K€	20 K€
Fonds levés en France (actions directement liées au projet)	20,5 K€		20,5 K€
Fonds levés en Asie (actions directement liées au projet)	160 K€	18 K€	178 K€
Fonds relatifs aux projets induits par cette collaboration	1 170 K€	1 200 K€	2 370 K€

12. Projects/proposals issued from ONCO-MEDIA common researches

- ✓ *Digital mammograms content-based retrieval in high dimension feature space*
 - MERLION PhD proposal 2007 – IPAL, Singapore – LIRIS, Lyon
- ✓ *Efficient Micromedical Image Retrieval (EMIR)*
 - MERLION proposal 2007 – UFC, Besançon – IPAL, Singapore
- ✓ *Submission µCARES- Breast cancer grading in a virtual microscope framework.*
 - ICT-ASIA 2008 – IPAL, ATENEO, LIP6, Telecom Bretagne, ...
 - Evaluation A+ (critères scientifique, échange, jeunes chercheurs)
- ✓ **SUCCESS: FP7 – European Project – EUASIAGRID (2 years: 2008-2010) - Towards a common e-Science infrastructure for the European and Asian Grids**
 - Project Leader: Prof. Marco Paganoni, Instituto Nazional di Fisica Nucleare, Milan, Italy
 - Project Members: Instituto Nazionale di Fisica Nucleare (Italy), CESNET, z.s.p.p. (Czech Republic), University of Manchester (United Kingdom), HEALTHGRID (France), Ateneo de Manila University (Philippines), The Australian National University (Australia), Academica Sinica (Taiwan), Advanced Science and Technology Institute (Philippines), Hydro and Agro Informatics Institute (Thailand), Infocomm Development Authority (Singapore), Ho Chi Minh City Institute of Information Technology (Vietnam), Institute of Technology of Bandung (Indonesia), National Electronics and Computer Technology Center (Thailand), Universiti Putra Malaysia (Malaysia) et MIMOS Berhard (Malaysia)
- ✓ *Submission FP7 – FET Open – AMI : Augmented Microscope: A Cognition-Driven Visual Explorer for Histopathology with applications to breast cancer grading and malaria diagnosis. Partners IPAL, LIP6, Univ. Geneve, Univ. Politehnica Timisoara.*
- ✓ **SUCCESS: ANR TecSan – MICO: MICO - COgnitive Microscopy for breast cancer grading (2011-2014), a project supported by the French National Research Agency ANR, program TecSan 2010, Reference ANR-10-TECS-015. Partners IPAL, LIP6/UPMC, THALES TCF, TRIBVN, Hôpital de la Pitié-Salpêtrière, AGFA Healthcare France.**
- ✓ **Submission FUI 2011 (in evaluation process) – CloudMim : Plate-forme de partage d'images médicales en environnement cloud : application aux images de lames entières de microscopie diagnostique. Supported by the poles MEDICEN and SYSTEMATIC. Partners ORANGE, IPAL, LIP6, TRIBVN, Hopital de la Pitié, Pertimm, University Paris Diderot.**

13. Impact of the collaboration / Rayonnement

The international impact of ONCO-MEDIA project is considerable. Involving East Asian and South-East Asian Countries (Singapore, China, Taiwan, Japan and Philippines)

beside the European partners from France and French-Switzerland, its ambitious challenge highlight the know-how of the partners, in an international dynamic network of excellence, benefitting from the previous EGEE 1 and EGEE projects. The efficiency of this collaboration is illustrated by the numerous scientific initiatives leaded by the partners all around Asia and in Europe, with some great successes of the partners in joining, due to the good dynamic image created by this project, important European and Asian-European projects/collaborations.

This collaboration leaded to many exchanges of idea and people (especially young researchers). The main results are finalizing 3 PhDs in international co-tutelle, 7 master theses in collaboration and the success of the projet FP7 – EUASIAGRID involving I3S and ATENEO, as the ANR TecSan MICO project (2011-2014) between IPAL and LIP6, on a continuation of the ideas initiated by the ONCO-MEDIA project.

Finally, IPAL initiated a federation – entitled AURA – of all major research laboratories in Asia. AURA – Federation of French ICT Research Units in Asia – is the initiative of IPAL (Singapore), LIAMA (China), MICA (Vietnam) and JFLI (Japan). The first AURA workshop took place in Hanoi in October this year. The next year (2012), IPAL will take the lead of this federation and the allocated and obtained budget will mainly be used for research students and research fellows exchanges.

*Le projet ONCO-MEDIA est un projet régional dont l'impact international est considérable. En effet, ce projet implique des pays de l'Asie de l'Est et de Sud-Est (Singapour, Chine, Taiwan, Japon et Philippines) ainsi que des pays du continent européen (France, Suisse). Le projet techniquement très ambitieux, a le mérite de mettre en évidence tout le savoir-faire français et européen, en profitant des résultats de projets européens (EGEE 1, EGEE 2) afin de dynamiser les algorithmes de recherche d'imagerie médicale des partenaires participants, ainsi que d'offrir la possibilité de définir un programme de travail collaboratif entre ces applications. Les nombreuses actions scientifiques Asiatiques et Européennes ont permis aux partenaires de s'associer naturellement par la suite à d'autres projets Européens et collaboratifs (Asie-Europe) d'envergure. Ceci est certainement très bénéfique pour le rayonnement de l'Europe, de la France, ainsi que pour celle du laboratoire franco-singapourien IPAL (Image perception, Acess & Language) issu d'une collaboration de longue date entre le Centre National de la Recherche Scientifique (CNRS), l'Université Nationale de Singapour (NUS), Institute for Infocomm Research (I2R-A*STAR) et l'Université Joseph Fourier de Grenoble (UJF).*

Cette collaboration a mené à un nombre considérable d'échange d'idées et de chercheurs. Les résultats les plus marquants sont la soutenance de 3 thèses et de 7 masters en collaboration, ainsi que le succès du projet FP7 – EUASIAGRID impliquant I2S et ATENEO ainsi que du projet ANR TecSan MICO (Microscopie Cognitive pour la gradation du cancer du sein) avec la participation de l'IPAL et du LIP6 dans la suite logique des idées initiées dans la cadre du projet ONCO-MEDIA.
